Electricity on the Farm

A MONTHLY MAGAZINE FOR THE UP-TO-DATE RURAL FAMILY

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(See inside back cover for rules of cash prize contest)

In This Issue

OCTOBER 1937

HANDLING AND GRINDING GRAIN—BETTER SERVICE FOR LESS MONEY—PROFITABLE FARM HELP—NO HAND TO WRITE LETTERS—ELECTRIC HOUSEKEEPING AND OTHER REGULAR FEATURES

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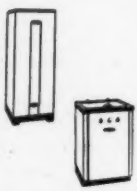

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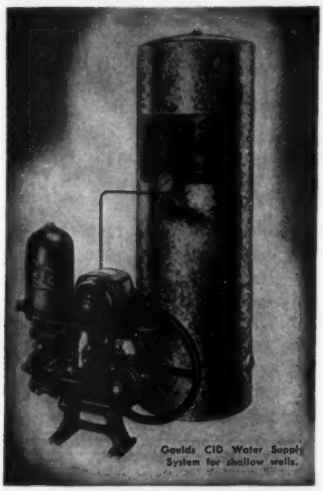
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October, 1937

Electricity on the Farm

Vol. 10, No. 10

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EDITORIAL

GEORGE W. KABLE, EDITOR

On September 1st, the editorship of this magazine was assumed by George W. Kable, a man who is recognized as probably the foremost authority in the country on rural electrification.

Having been raised in a farm community and blessed with an inquiring and critical mind, Mr. Kable was quick to appraise efficient farming methods and to recognize inefficient ones.

It was while working on a farm that he determined to fit himself for an agricultural career. His first step was to complete his high school education at the Dixon, Illinois, High School. Subsequently he attended the Universities of Washington, California and Nebraska, securing Civil Engineering and Agricultural Engineering degrees.

Since completion of his college work, Mr. Kable has devoted his efforts to the development of better farming, with particular stress on the use of electricity.

In connection with his work in the field of rural electrification, his ability has many times been recognized, as is indicated in an article elsewhere in this issue.

With his thorough knowledge both of practical farming and electrical applications in farming, he is peculiarly qualified to aid in advancing the farm electrification movement on an economically sound basis.

In joining ELECTRICITY ON THE FARM, Mr. Kable receives the enthusiastic cooperation of the entire editorial staff, which remains intact.

FRED SHEPPERD,
Editorial Director.

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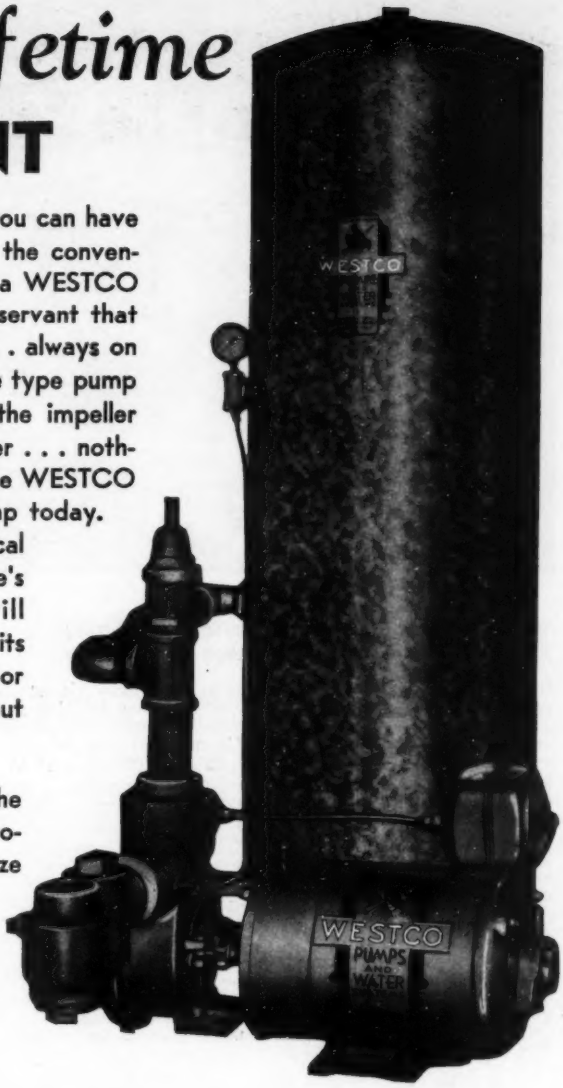

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Go to your electric store today and see the beautiful new Hotpoint Ranges. Edison General Electric Appliance Co., Inc., 5610 W. Taylor St., Chicago.

*CALROD is the name of Hotpoint's patented metal-sealed Flat-top cooking unit that has revolutionized electric cookery. It has brought new speed, new cleanliness, new economy and more years of useful life to the electric range.

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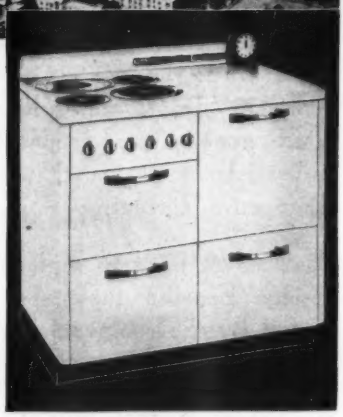
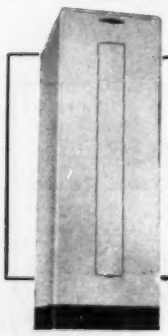


THE CHESTERFIELD. This beautiful, built-to-the-floor electric range brings clean automatic cookery to your kitchen. Full porcelain enamel with three Hi-Speed Calrod cooking units and Thrift Cooker.



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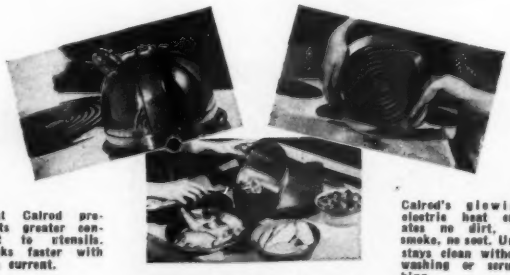

Flat Calrod presents greater contact to utensils. Cooks faster with less current.

Thrift Cooker cooks whole meals on low heat. Cuts cooking costs. Saves time, work and money.

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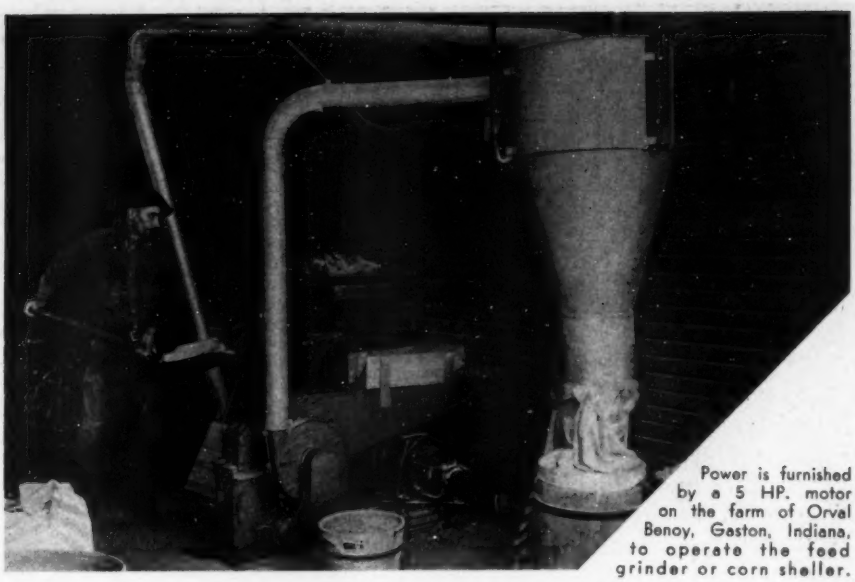


Power is furnished by a 5 HP. motor on the farm of Orval Benoy, Gaston, Indiana, to operate the feed grinder or corn sheller.

HANDLING and GRINDING GRAIN with ELECTRIC POWER

By TRUMAN E. HIENTON

ELECTRIC motors have been accepted for some time as practical power units for furnishing power for feed grinders and grain elevators. This was revealed in a recent study made at Iowa State College by the author. Electric power was being used on 54 of the 159 Iowa and Indiana farms, included in the survey, to operate grain elevators and on 33 farms to drive feed grinders. On seven of these farms, the motors had been in use 20 or more years, while on one of them, the motor had been in operation since 1914.

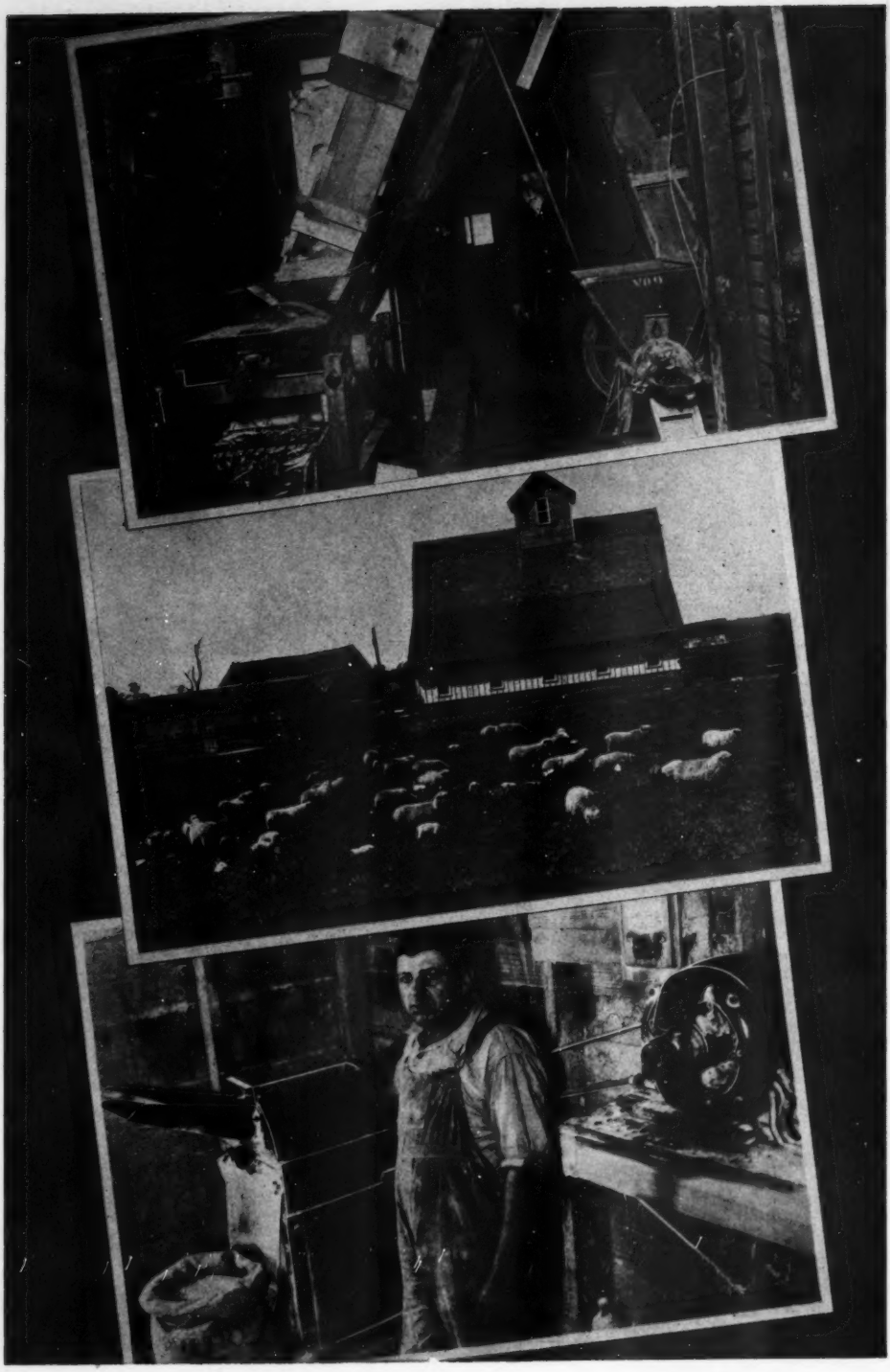
Dr. J. B. Davidson says in his text on Agricultural Machinery that: "The only conditions under which the handling of grain by hand methods can be justified at all is when the quantity of grain moved is so small as not to justify the overhead expense of machinery. Elevating machinery as ordinarily installed will multiply the work of a laborer two to ten times."

Seven pictures of electric motor-driven grain handling and feed grinding equipment were shown in the July issue of this magazine. They included a portable elevator, stationary elevator, and pneumatic elevator. Another picture showed an installation where grain was blown from a thresher through a pipe to the granary. Installations were shown of both burr and hammer type motor-driven feed grinders.

The three types of elevators, namely, portable, stationary, and pneumatic have particular locations to which each is best suited. The portable type is most often used for single story cribs or granaries and is usually located outside of the building when in use. The stationary type is, as its name indicates, not movable and is usually located in the center of a building of two or more stories. It is most frequently employed where all grain on the farm, both corn and small grain, is stored in one building.

The pneumatic type, which is ordinarily portable, may be used for elevating grain into buildings of more than one story but is seldom, if ever, used to elevate material other than small grain or shelled corn. Blowers, which are furnished with feed grinders to elevate ground grain, are occasionally used to elevate whole grain into overhead storage bins.

Electric motors, which are used as sources of power for grain elevators, may be as small as ¼ horsepower and rarely exceed five horsepower in size except for some of the pneumatic type. Where motors are used for driving machinery other than the elevator, they may be larger than five horsepower. Of the entire group of 54 electric motors, previously mentioned, which were employed to operate grain elevators, 30 were used only to op-



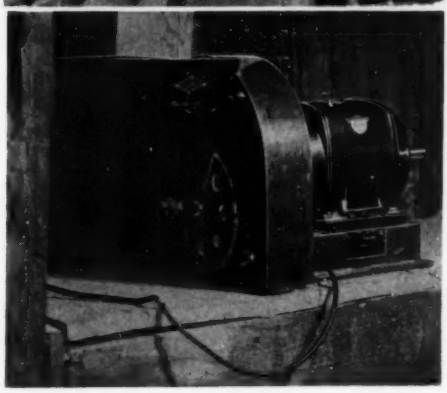
Upper Left: Interior view of electrically equipped corn crib, and granary of Ed. Layden, near Odell, Indiana. A 7½ HP. motor drives the grain elevator, feed grinder or corn sheller.

Center: Exterior view of the combination corn crib and granary on farm of Ed. Layden, near Odell, Indiana.

Lower Left: Grain is ground electrically on the Martin-Weaver poultry farm at Goddard, Kansas.

Upper Right: This 18-year-old 5 HP. electric motor operates the grain elevator, feed grinder and corn sheller on the farm of J. W. Wooten, Marshall County, Iowa.

Lower Right: Feed grinder on the farm of Mike Nickels, Jr., Byron Center, Michigan.



erate the elevators while the remaining 24 operated one or more machines in addition to the elevator. Motors in the first group were divided by sizes as follows: 14 of 3-horsepower capacity, 1 of 4-horsepower, 14 of 5-horsepower, and 1 of 7.5-horsepower. The smaller group included 4 motors of 3-horsepower, 16 of 5-horsepower, 3 of 7.5-horsepower, and 1 of 10-horsepower.

The elevators in the above group of 54 were nearly all of the stationary type. Such installations may readily limit the use of the motor to the operation of the elevator with correspondingly high overhead charges unless consideration is given to employing the motor to drive other machinery. Equipment in use on the 24 farms where the electric motor did drive other machinery besides the elevator indicate that farmers are aware of this fact. On 14 of the farms, the motor on the elevator was used to drive a feed grinder, on 7 others a feed grinder and corn sheller, on 2 a sheller and on 1 an oat huller. This combined use apparently affects the total life of the motor very little so that the hourly overhead charge of the motor decreases in an almost direct ratio with the increase in number of hours used per year.

The multiple use of an electric motor where it is used on a stationary elevator will require some careful planning on the part of the owner. This is especially true if more than one additional machine is to be operated. In most cases it will be necessary to install a countershaft to drive the additional machines. Two such installations are shown with this article, one on the farm of Ed. Layden of Tippecanoe County, Indiana and the other on the farm of J. W. Wooten of Marshall County, Iowa. In the first case, a 7.5-horsepower motor provides power and in the second, one of 5-horsepower drives the machines. In both cases power is provided for the elevator, a feed grinder, and a corn sheller.

The installation which Mr. Layden has made is perhaps the more nearly complete of the two so will be described in more detail. Inspection of the interior view of the structure on this farm will show the detailed arrangement of line shafts with belt drives to corn sheller, cob elevator, feed grinder, and floor conveyor. Each machine is started or stopped by means of an individual clutch.

Handling of grain by hand has been practically eliminated from the time it arrives by wagon or truck until it is reloaded again ready to be fed to livestock. Each load of grain on arrival is dumped into a pit below the level of the floor and is elevated into the bins above the driveway or into the cribs on either side of it. Grain may be fed to the grinder by gravity directly from the overhead bins through spouts. Ear corn is carried from the side of the crib to the dump pit by means of a floor conveyor, is then elevated and drops to the sheller through the large chute in the left center of the picture. Shelled corn is moved back to the dump pit and reelevated to an empty storage bin where it is stored until needed.

The size of this installation may be too extensive for many farms where considerably less grain is handled during a season. Smaller equipment driven by smaller motors may be adequate on such farms. Other combinations of equipment may be of greater importance in the type of business which is being conducted on that particular farm. Under any conditions the thought expressed in the second paragraph may well be considered and the overhead cost of grain handling equipment evaluated against the labor and time it will save.

PROFITABLE FARM HELP

By HOMER I. HUNTINGTON
President, Connecticut Poultry Association

ELEVEN years ago I purchased a farm in Winsted, Connecticut, and started to raise poultry. There was no electric service on the farm. Before settling on the farm I had lived in cities where electricity played a large part in providing the convenience and comforts of home life. Being without it in my new venture, I realized for the first time the often mentioned hardships of our forefathers. I had to chop and saw wood for warmth in the house; haul, and provide storage bins for, coal to operate brooders; make regular trips to town to buy kerosene for the range, water heater and lamps; pump gallons upon gallons of water by hand for home use and for my hen houses; in fact, it seemed hardly possible to keep up with the chores that had to be done. Besides, we had refrigeration and laundry problems to contend with.

In order to derive maximum profits from the farm, I made an intensive study of my problems in search of economies that could be made to cut labor costs and improve the efficiency of operations.

It didn't take me long to realize how electricity would help me accomplish my purpose. I applied for electric service. Although I started at a high rate, many of my hardships vanished. My labor costs decreased and we began to enjoy many comforts of modern home life. I soon learned that if I used more kilowatthours, I earned a more favorable rate. We got an electric range and I got the first reduction. Later we purchased a hot water heater, and a lower rate resulted.

My home is equipped with an electric range, hot water heater, refrigerator, lights, and many labor saving devices to lighten the housework for Mrs. Huntington. On my poultry farm a small electric motor pumps 10,500 gallons of water per month for the house and for my 4,000 birds in the hen house, consuming 15.75 kilowatthours of current. This one job alone would take one man 8 hours a day for 21 days each month to accomplish. Likewise, I consume 5,000 kilowatthours a year to electrically incubate 25,000 chicks. This hatch costs me less than ½c per chick for electricity. Besides the economical cost of incubation, there is the advantage of a higher percentage of hatch due to the accurate, automatic control features of electric incubators.

Over a one-year period my average monthly bill is about $18. In my continuous effort to reduce overhead and increase efficiency of my farm operations, I know there is no other farm aid that will do the work performed by electric power for this cost, and so efficiently. Electricity is the cheapest necessity on the farm.

Upper: One of Mr. Huntington's "electric hens" which satisfactorily incubates his chicks electrically at an average annual cost of one-half cent per chick for electricity.

Left: A one-third horsepower electric motor on the Huntington farm pumps water from a 92-foot well and stores it in a 350 gallon tank to the right of the pump. This pump does all his pumping for him at 31.5 cents a month.

I'M NO HAND TO WRITE LETTERS

But Here's One I'm Going to Answer—

IN PERSON

By HELEN G. TOLAND

JUST now I had a letter from a friend of mine, who lives a little over three hundred miles from here . . . on a farm.

Her letter makes me want to be on my way to her rolling acres. It brings up so many things I want to say to her—and not in a letter.

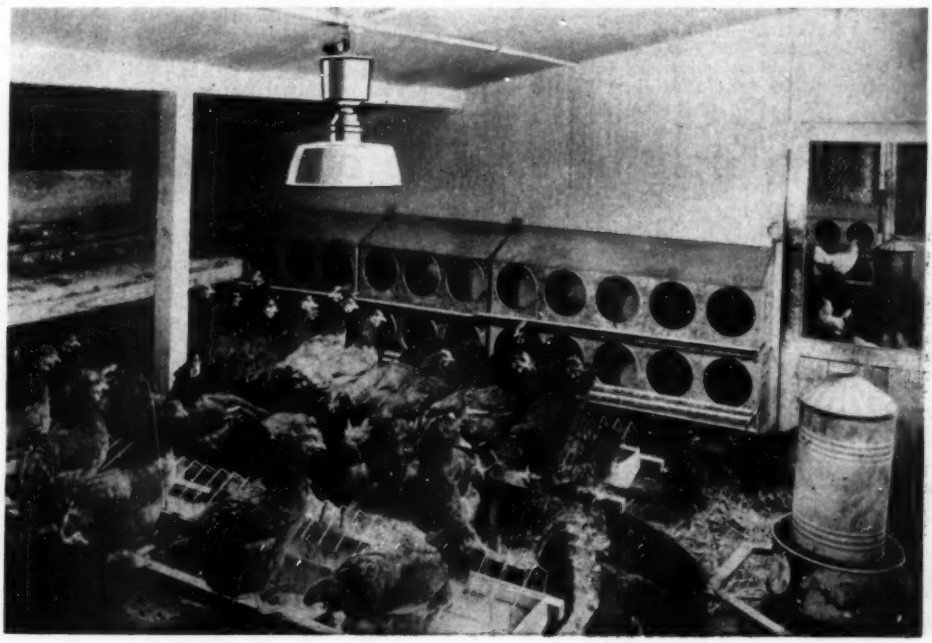
Jane's house was wired for electric lights just five months ago. Maybe she can't put electricity to work for her fully yet because she can't afford many new appliances this first year. But at least she could have a motor on her washing machine and an electric iron and vacuum cleaner. Moreover I see a way for her to get them.

She says "Everett (that's her husband) has 300 little white Leghorn chicks and has ordered 125 fine Rhode Island Reds." Do you suppose he knows what electric lights can do to swell his poultry profits? He already has electric lights in his henhouse. I want him to realize that burning these regularly a few hours each day before dawn and after dark will make his Rhode Island Reds (and any other hens he may have) lay more eggs. I hope he doesn't ask me why. Agricultural Experiment Stations, after much research along these lines, don't agree about the reason. The point is (and this is the point I want to make with Everett) *they do lay more eggs.* Even the plain household variety of lamp bulb, burned in the henhouse morning and night, has this most profitable effect.

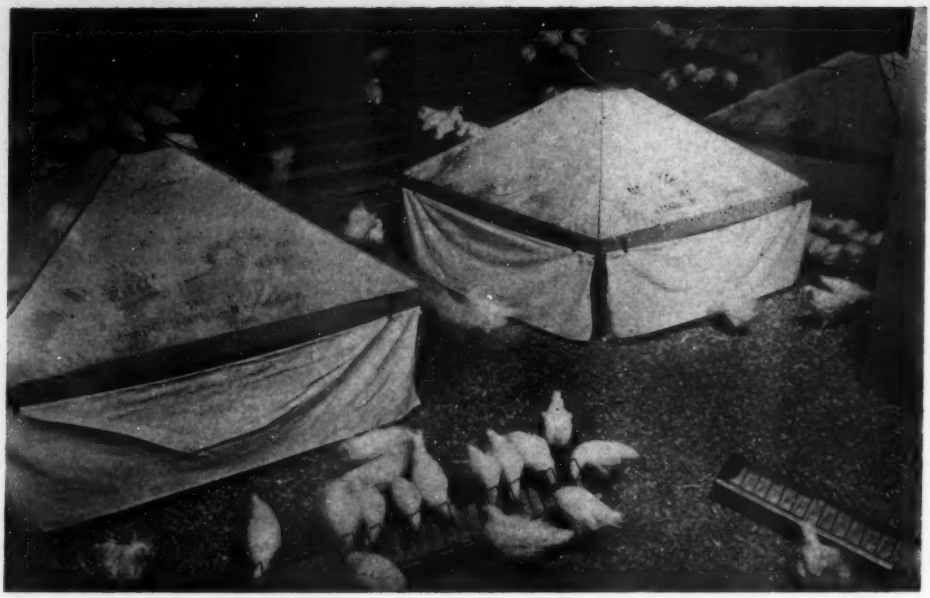
Advantages of Ultraviolet Light

Of course, ultraviolet light is better yet. Not only does it make hens lay more eggs, but the eggs have stronger shells. They hatch better too.

I want to tell Everett about good sources of artificial ultraviolet. There are the MAZDA sunlight bulbs, Types S-1 and S-2, and the MAZDA CX bulbs which come in 60-watt, 250-watt and 500-watt sizes. The Type S-1 at a distance of 48" or the S-2 at a distance of 18" provide as much healthful ultraviolet as you get from mid-



Under a 250-watt Mazda CX bulb, in an aluminum reflector, these hens will produce more and better eggs.



Three hundred chicks flourish and prosper when a 60-watt Mazda CX bulb furnishes healthful ultra-violet in each brooder.

summer sunshine. As for the CX bulbs, they are usually hung about three feet above the hens, but must be burned longer than the S-1 and S-2 to produce equal results.

One 250-watt MAZDA CX bulb burned three or four hours a day—will irradiate 100 chickens with noticeable benefits.

I'd like to tell all this to Everett . . . tell it so convincingly that he'd want to try it, and find out for himself what the "noticeable benefits" are.

Of course, I'd tell him to use the bulb with an aluminum reflector. And I'd tell him *why* aluminum—because it reflects ultraviolet efficiently. It should be used with all artificial ultraviolet sources.

As for his three hundred little white Leghorn chicks, I'd certainly want to tell him what ultraviolet will do for them . . . just what cod liver oil does for children. Three 60-watt MAZDA CX bulbs (one for every 100 chicks) will provide the beneficial ultraviolet. His chicks will flourish and prosper . . . and so will he. And out of the profit, Jane could have that motor for her washer.

The Store by the Side of the Road

By FRED. H. ZAUTNER*
New Scotland Gardens, New Scotland, N. Y.

WHEN operating a roadside stand, the quality of your products is the governing factor, if your business is to prosper year after year. You cannot expect your customers to come again if you sell them a dozen ears of sweet corn, and when you are putting them into the bag know that there are two or three ears which have either corn borers or corn ear worms in them. Nor can you sell the customer corn and call it fresh picked when the outside husk is wilted or the edges of the husk are turning brown. Another practice which should never be tried is to top the containers with the best fruit or vegetables and put a poorer grade on the bottom. This method will work only once.

Your stand should be on the right-hand side of the road when near a large city or town, so that the public can stop for your produce on the way into town. Next, have the stand placed adjacent to adequate parking space. The motoring public prefers not to top on a busy highway and never should be asked to back out into the highway after having made a purchase. This can be avoided by having the driveway wide enough for more than two cars to pass. Have the parking space large enough to accommodate a number of cars so that your entrance and exit are clear at all times.

Adequate lighting is one of the most important factors of a successful roadside market. The driveway should have plenty of light on both ends. Make sure that the floodlights are placed high enough on poles so that the stand, the parking space, the driveways, and the highway are well lighted. The lamps should be focused so as to eliminate any possible glare in the eyes of the motorist. The lights on the stand itself should be equipped with reflectors to concentrate the light on the produce. Of course, the successful market will have a neat, not too large, lighted sign out front.

*From a radio talk over Station WGY.

BETTER SERVICE for LESS MONEY

By H. N. WELLS
County Agricultural Agent,
Sullivan County, N. H.

FOR several years I have worked on rural electric line extensions. I have tried to help the farmers of my county secure the benefits and conveniences of more complete electric service in their homes. And in the summer of 1936 I was for the first time able to give them exact operation costs based on a full year's test in my own home.

This test disclosed the remarkable fact that the operation of electric range, refrigerator and water heater actually cost me less money than the older equipment they replaced.

There are four in our family. We had in our kitchen a coal range with hot water tank and also a gas range for use in summer and whenever we were in a hurry. There was also a gas heater on the water tank for use when the coal fire was out. And out on the porch we had an ice refrigerator, used about five months of the year. While we dreamed of changing to electricity and feared it would cost too much, we kept accurate records on the equipment we had.

When we took the plunge and put in a range with four burners and oven, a 5.2 cubic ft. refrigerator and a 52 gallon water heater, I borrowed

•

Upper: Mr. Wells' home where electric operation proved cheaper than the old methods.

Lower Left: Nice results every day for less than twenty-five dollars a year.

Lower Right: Twelve months convenient refrigeration for the price of four months ice.

•

Table I—Kilowatt Hours Used Each Month

1935	Lights	Refrigerator	Stove	Total	Water Heater	Grand Total
August	26	21	31	78	193	271
September	58	30	69	147	258	405
October	62	19	80	161	262	423
November	78	19	91	188	289	477
December	74	19	97	190	280	470
1936						
January	72	19	99	190	314	504
February	66	17	94	177	309	486
March	60	20	95	175	298	473
April	48	19	85	152	282	434
May	45	23	83	151	277	428
June	28	22	70	120	235	355
July	19	23	49	91	203	294
Total	636	241	943	1820	3200	5020
Average	53	20.1	78.6	152	267	419

several meters and had one connected to each appliance. These have been read every month now, for over a year.

Our total expense for electricity, coal, gas and ice during the last twelve months before we made the change was $130.49, an average of $10.87 a month. When electricity replaced the other methods the year's bill was only $127.38. So we actually saved $3.11 in money in addition to gaining all the other advantages.

We have the refrigerator in the kitchen instead of out on the porch; we use it 12 months a year instead of 5, and it cost us $12.43 for current instead of $15.00 or more for ice. The range certainly takes up less space than the two old ones; it is not a source of soot, dirt, or ashes; it bakes better; and current for it cost us less than $25.00 a year. Of course the water heater is completely automatic; we never have to touch it. Yet it provides plenty of hot water for all purposes for only $4.00 a month.

In the table showing the current used for different purposes the figures under "Lights" include the electricity used by all the small appliances, such as the toaster, vacuum cleaner, washing machine, and iron as well as the lights themselves.

PUT A MOTOR ON THAT CORN SHELLER

By CHARLES V. THAYER

Mount the motor on a well braced, solid, flat platform on top of sheller, and bolt pulley to fly wheel.

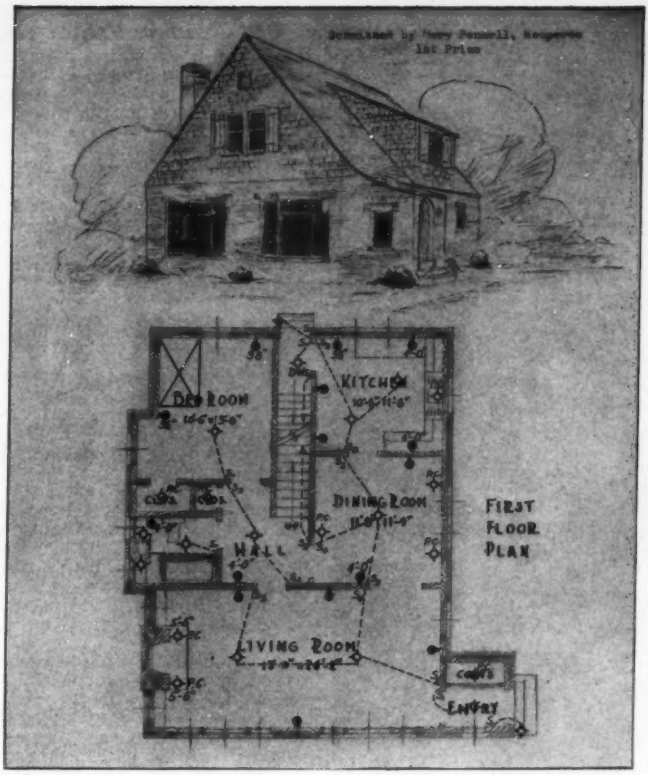
FOR about $12.00, plus half a day's labor, you can motorize your corn sheller. It is a very practical improvement, saving labor and putting less wear on the sheller than hand turning because it gives a really steady flow of power. The sheller illustrated, though an aged one, recently turned out 3,000 pounds of shelled corn in one seven hour stretch.

A one third horse power motor is recommended and gives splendid performance. However, if you have a one quarter horse power motor around it will probably do the job if the sheller is in good shape, but it will not have the reserve power of the heavier motor. Be sure that it turns the right direction to run the sheller. Most motors can be made to run either way.

First you must determine the speed at which you want the flywheel to turn. Tie a small piece of heavy cord around the rim of the flywheel, so that by holding your finger against the flywheel rim, you can count the revolutions as the cord hits your finger. Have someone turn the machine at the speed you wish it to run, while you count the flywheel revolutions for exactly one minute by your watch.

Most motors turn at 1,725 revolutions per minute. The motor pulley should be of fiber to prevent slipping, and should have a diameter of one and one half inches. To find the diameter of the pulley to be bolted to the flywheel to give the desired speed; multiply the diameter of the motor pulley by

(*Continued on page* 33)



Wiring diagram submitted by Mary Pennell of Nezperce Idaho, which won first prize.

4-H CLUB FEATURES RURAL ELECTRIFICATION

By HOBART BERESFORD

WHEN it came time for the 1936 junior short course for the 4-H Club girls and boys, which is held annually at the University of Idaho, it was decided that rural electrification would be a popular topic for the Agricultural Engineering Department's contribution. The Idaho Committee on the Relation of Electricity to Agriculture cooperated in a program that consisted of various instructions in the use and benefit of electric service on the farm and in the home. A special exhibit of lighting fixtures was made available by the local office of the Power Company. Farm wiring was discussed from the use standpoint and farm lighting and household electrical aids discussed with reference to selection and management.

After this instruction period for the boys and girls a short competition was held. Mr. J. B. Rodgers, Field Engineer for the Idaho Committee on the Relation of Electricity to Agriculture, gave each girl a floor plan of a small home selected from the Agricultural Engineering Building Plan Service. This plan showed the location of lights, convenience outlets, and switches by means of symbols explained in a key. The plan was later used as a guide for locating the household electric service outlets on the second plan shown in the illustration above.

The arangement of the wiring of the first floor of the plan was in the nature of a competition. Considering the brief instruction, the results of the contest showed fine interest and application. Several creditable plans were turned in at the end of the hour and the judges decided that the prize of a subscription to ELECTRICITY ON THE FARM and a certificate should go to Mary Pennell

Upper: Winner in House Wiring Competition, left to right; Mary Pennell, Nezperce; Margaret Nell Waters, Nezperce; and Grace Mea Jensen, Nampa.

Lower: Winners in Farmstead Wiring Competition, left to right: James Bernard, Weiser; Dale Phillips, Tekoa; Washington; and Wayne Schriver, Orofino.

and Margaret Nell Waters of Nezperce, and Grace Mae Jensen from Nampa.

Farmstead wiring was discussed with the group of boys who were given a plan for a typical farmstead layout and asked to locate the wiring system for electric service. The distribution system included the location of the transformer, distribution panel, and feeder lines to the various farm buildings. The winners in this competition were James Bernard of Weiser, Wayne Schriver of Orofino, and Dale E. Phillips of Tekoa, Washington. These boys were given a certificate and a year's subscription to ELECTRICITY ON THE FARM for the awards. Only one of the three, James Bernard, lives on an electrified farm and the others are looking forward to electric service as indicated by the careful work on this plan.

Electric Water Heaters

Electric water heaters are ideal for the small dairy. Their use eliminates the necessity of heating water in the kitchen and carrying it to the barn, or carrying the utensils back and forth. Hot water is available at all times without the bother of stoking coal or wood. Thorough insulation of the holding tank prevents heat losses between periods of use and an automatic thermostatic control insures correct washing temperatures. In general, the following advantages are characteristic of electric heaters: Absence of objectionable fumes and smoke, no pilot lights or the possibility of explosion or fire, elimination of fuel storage provisions, no open flame, and a compact unit, permitting location in any part of the milk house which is convenient. There is no attention or adjustment needed on the part of the operator, uniform water temperatures are adjustable by thermostat.—*N. J. College of Agriculture.*

What Is Adequate Wiring?

One of the frequently stated requisites for satisfactory electric service is that the wiring must be "adequate." Although interpretations depend on local needs and conditions, contractors and owners are prone to underestimate developments in the service required. The almost universal experience of those using electric service is that the wiring, service outlets and the entrance service soon become inadequate to carry the load added since wiring.

Expansion is costly when super-imposed upon wiring systems that are too small. Extension of the service, a few outlets at a time, costs at least twice as much as when provided for in the original wiring contract. A cheap and skimpy wiring job is more expensive in the long run than a carefully planned and thoroughly complete job. Reputable wiring contractors and representatives of power companies will be glad to assist in planning systems to insure their adequacy.

Septic Tank or Cesspool?

Septic tanks and cesspools are not identical. Many persons still seem to think that discharging sewage into a dry well is a satisfactory means of disposal. Cesspools depend on filtration of sewage through the soil. This inevitably results in coating the sides and bottom of the dry well with an impervious sludge, rendering the system inoperative and dangerous to health, according to a bulletin of the N. J. College of Agriculture.

Septic tanks differ from cesspools in that they are tight containers for sewage treatment. In most cases, septic tanks have two chambers or compartments. The sewage undergoes digestion in the first chamber, relatively clear material passing over into the second compartment for final digestion. The effluent, or discharge fluid, from such tanks is free from all material which would block or coat a disposal drainage system. It is distributed over a large area in the soil by means of ordinary field drainage tile laid on appropriate grades. A properly designed septic tank disposal system needs very little attention and requires cleaning out of the undigestable sediment at intervals seldom less than five years.

Dr. Slicem: "Now, don't worry about your wife. You'll have a different woman when she gets back from the hospital."

Chubbywitt: "But what if she finds it out, Doc?"

GEO. W. KABLE NOW EDITOR *of*

ELECTRICITY ON THE FARM

George W. Kable, M.S., A.E.

EFFECTIVE September 1st, George W. Kable, probably the foremost authority in this country on farm electrification, assumed his duties as Editor of ELECTRICITY ON THE FARM. He comes to this magazine with background and training which peculiarly fits him to render outstanding service to the field.

Mr. Kable's early life was spent in a farming community in Northern Illinois, where, like all farm boys, he had a hand in the farm work, and in the blacksmith shop as well. Witnessing the many crude farming practices of the time, he determined to fit himself to become a leader in more progressive farm operations, and to promote better living conditions among farmers.

His early education was secured in public schools and the North Dixon, Illinois, High School. Upon graduation from High School he attended the University of Washington, transferring after three years to the University of California, where he specialized in irrigation and received his degree of B.S. in civil engineering.

Following two years of teaching and special study at the New Mexico College of Agriculture he took a course in agricultural engineering and farm management at the University of Nebraska, resulting in a Master of Science degree in agricultural engineering. In 1936 he was honored by being granted the professional degree of Agricultural Engineer by Iowa State College.

Mr. Kable's activities in the agricultural field have been varied, with particular stress placed on rural electrification. Following his college work he was manager of the famous Tres Ritos Ranch at Three Rivers, New Mexico. For three years he was Agricultural Engineer of the Oregon Agricultural Experiment Station, and Director of the Oregon Committee on Relation of Electricity to Agriculture.

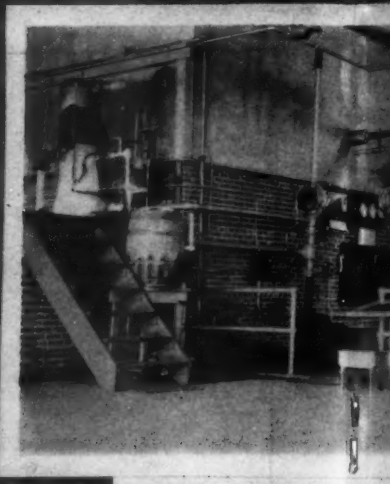
In this latter connection he did notable work with incubation, brooding, poultry house lighting, water warming, care of dairy cows, dairy and home refrigeration, hay hoisting, pasture and truck irrigation, bulb sterilization, and the dehydration of prunes, hops and nuts.

For five years, from November, 1928, he was Director of the National Rural Electric Project at College Park, Md., under the auspices of the National Electric Light Association and utilities in Maryland and the District of Columbia. In this work he covered the many phases of rural electrification. He initiated educational work and conducted research and development work. These activities embraced research on electric treatment of soils, insect control, electric soil heating, development of dairy sterilization, farm and home management, and kitchen arrangement and equipment.

In connection with these studies, Mr. Kable equipped five farms electrically and made economic and sociological studies of the effects of electrification.

While Director of Research for the Committee on the Relation of Electricity to Agriculture, he visited agricultural experiment stations, engineering experiment stations, research laboratories, universities, farms and power companies in all sections of the country to study applications of electricity to agriculture.

He had charge of the CWA rural electrification survey of the United States with the Bureau of Home Economics, U. S. Department of Agriculture. He also prepared a prospectus on rural electrification in the Tennessee River basin, on special assignment with the Bureau of Agricultural Engineering, U. S. Department of Agriculture. Mr. Kable comes to ELECTRICITY ON THE FARM from the Tennessee Valley Authority, where he was Chief of the Division of Rural Electrification and Agricultural Engineering.



Many Are the W

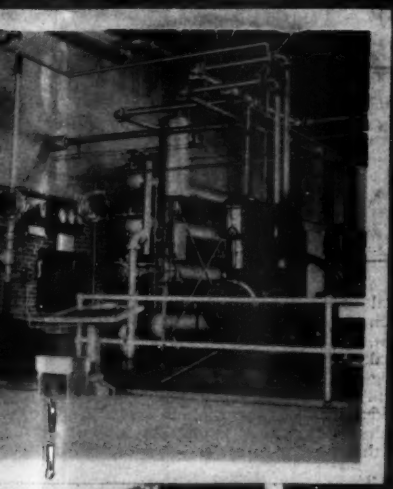
ELECTRICITY AIDS THE

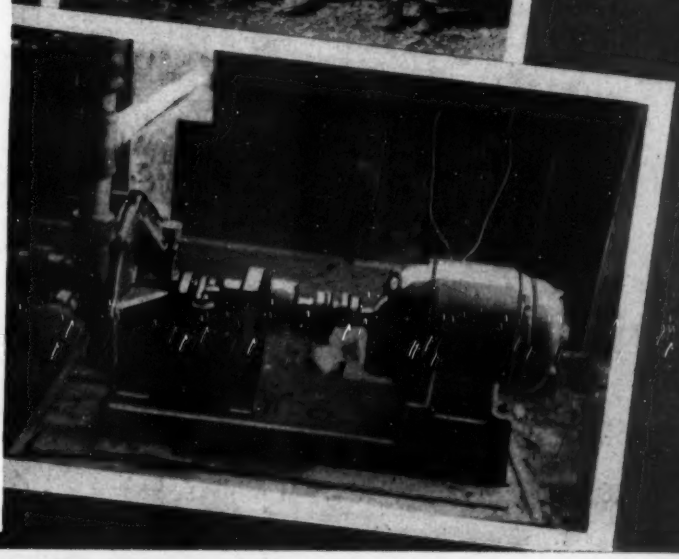
Top Row: (left to right) Exterior and interior views of the plant of Marion T. Fennally, Inc., grower, packer and shipper of frozen fruits, Ponchatoule, La. Electric motors drive the compressors and operate the sorting conveyors.

Inexpensive portable irrigation lines serve a vegetable grower near Roanoke, Va. An electric motor supplies water for the system.

Center Row: (left to right) A bug trap on the farm of Wilbur Woods, Connellsville, Pa. The light attracts the insects and the tub with oil on water does the killing.

This gardener knows the value of eye appeal to his city customers. Hot sun and wind soon wilt fresh vegetables, so a spray of water from an ordinary lawn sprinkler





e Ways in Which THE MODERN FARMER

keeps them crisp on this roadside stand.

Arlene Hess helps her uncle, F. E. Gray of Penfield, Pa., bring in the eggs. Wire egg baskets permit rapid cooling of the eggs, which means improved quality and higher prices.

Lower Row: (left and right) Wilbur Woods of Connellsville, Pa., and County Agent Ubel look over the crop of head lettuce. Mr. Woods employs a 1½ HP. electric motor to irrigate his farm.

This centrifugal pump with its direct connected one horsepower motor serves a vegetable grower near Hammond, La. Sandy top soil with a water table about 15 feet below needs only this pump to insure a crop when the weather is dry.

ELECTRICAL

HOUSEKEEPING

CONDUCTED BY

GAIL MEREDITH

THEY'RE TOPS

THE kettle is just an ordinary big aluminum kettle, but it fits down on a heating unit in a well with thick insulation in its walls. This holds the heat in. The cover is thick with insulation, too,

as you can see in the picture. The hole on the far side is to let the steam out. Cookers like this are designed for steaming and cooking processes that take a long time. Here on the top of the range is a shoulder of pork surrounded by potatoes and parsnips that were cooked with the roast, but not so long. The roast cooks from 25-30 minutes a pound; the vegetables from 45 minutes to an hour; the pudding an hour. If you'll take a pencil to it, you can figure backwards and get the time to put in the vegetables and the covered pudding pan.

Chocolate Pudding

1 egg	1½ teaspoon baking powder
½ cup sugar	few grains salt
1½ oz. chocolate	½ cup milk
1 cup flour	
1 teaspoon butter	

Beat egg thoroughly. Add sugar and beat. Add melted chocolate and butter. Add the flour, baking powder, and salt, alternately with milk. Pour into buttered mold.

Put 1 cup water in kettle. Turn on High heat. Place pudding on rack. When steam comes from the vent, turn to Low and steam for one hour.

Besides steaming several vegetables at once and keeping the taste of each distinct and separate, besides cooking the meat, and steaming a pudding, the well cooker makes an excellent waterless cooker for leafy vegetables. It is a handy sterilizer. It is convenient for making soups, for deep fat frying, for cooking cereals, for cooking dried fruits and vegetables, for getting ready a day's supply of food for the baby.

If you will cut up your vegetables, your fruit and even the round steak for beef broth, and pack each food separately in a flat jelly glass with such seasoning and water as it demands, you can pack them all in at once and them all in at once and cook them safely by steaming them for two or three hours. No watching, no scorching, no puttering about with little dabs of this or that. The little dabs are all cooking separately in the well cooker.

This recipe for baked beans comes from Miss Julia Sanders, Tampa, Florida.

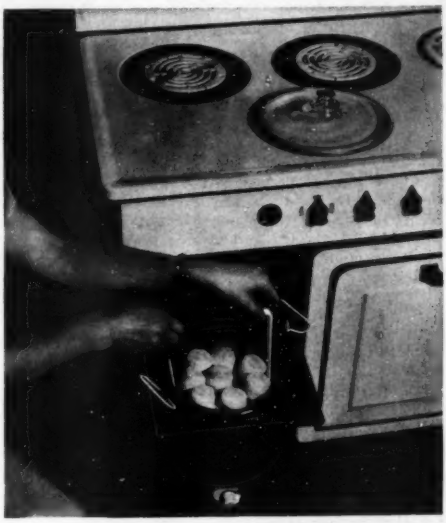
Baked Beans

¾ cup brown sugar	2¾ pound salt pork
2 tablespoons salt	2 medium sized onions
1/3 cup molasses	1 teaspoon mustard
6 to 7 cups cold water	¼ tsp. black pepper
1½ pounds navy beans	

Cook in well cooker for 12 hours on Low heat. The beans need not be soaked before cooking.

This long roaster (right) built into the top of the range gets most of its heat from the side walls, there is just a little in the bottom to brown the gravy. Like the well cookers, it has sides that are heavily insulated to keep the heat in. The roaster has an accurate thermostat just like the oven's. You set it for the temperature you want and turn on the switch. There is a big enamel pan for the roaster and racks to hold the dishes of food.

You can use the roaster for making soups, for steaming, for long cooking at a low temperature, just as you do the well cooker, and in addition, you can bake and roast in it.



This small cooker (left) can be set in place of one of the burners on the top of the range, or mounted as you see on the door. Its heating elements are around the sides and it can be used for baking, roasting, steaming as well as making soups and scalloped dishes.

"Can she bake a cherry pie? Can she bake a cherry pie?" Pies and cakes, and cookies and bread. It is a convenient, economical and accurate oven. (Right)

FOR THE FLOOR

A GOOD many women are making over their kitchens this fall. A new range, a new refrigerator, or a new water heater gives them a chance to rearrange the working space, to rebuild the cabinets, and often enough to redecorate the whole.

Above: A mottled design marked off in large squares.

Below: A conventional pattern for inlaid linoleum.

An up to date kitchen demands an uptodate floor, a floor that is easy to walk on, easy to clean, and easy to keep in good shape.

If you are studying floors for your kitchen, very likely you have come to the conclusion many kitchen engineers have reached, that linoleum is the best all round floor covering for your home.

It comes in a wide variety of designs and colors to fit any scheme you have in mind. It is easy on your feet because it has a certain resilience and elasticity that hard wood floors, cement and tile all lack.

It will be easy to clean because it has a smooth surface that does not absorb water or grease, but is on the contrary, fairly impervious to them. But that surface is not slippery, so you won't be going around tense lest you skid around the corner of the range with a pan of hot soup in your hands. Nor does it clack and clatter at every impact of your heels.

Like the composition floors that are mixed and laid like cement, linoleum can be run up to form a base board, recessed to give you toe room when you stand close to your cabinets. This does away with that dust catching crack along the wall. These composition floors, by the way, are very easy to clean, but hard to stand on, and if you get them wet, more than a little slippery.

Types of Linoleum

There is more than one kind of linoleum. On printed linoleum the design is stamped on with oil paints. This makes possible a great many designs and colors at a low price, but because the design is just painted on the surface, it wears off in spots. Plain and inlaid linoleum are made with the color going way through to the backing, so the color will last as long as the linoleum itself.

Any kind of linoleum needs good care to keep it in shape, but it is easy care, just washing with mild soap and water as a regular thing. The printed linoleum can be varnished to protect its color; the plain and inlaid last longer if they are kept waxed. Paste wax is good, and many of the new wax-like materials that need no polishing are easy to apply and are impervious to water spots.

When you weigh the difference in cost against the wear it will give, the heavy inlaid linoleum seems the more economical. Mrs. Felder vouches for that in her contest letter this month; so does Mrs. Glen Thatcher of Valparaiso, Indiana.

"Fourteen years ago, having worn out one piece of print linoleum," says Mrs. Thatcher, "we bought inlaid, cementing it to the floor. I then went over it with paste wax filling the pores well and have since used liquid wax about every six months. My floor has a beautiful lustre, is easily wiped off, and there is not a crack or a worn spot in it. The initial cost was great, but I feel that we have been repaid. My neighbor buys a piece of print linoleum every two years for her kitchen."

Put Your Wits to Work

But not every woman can have a new linoleum floor when she remodels her kitchen. Perhaps you can't. But that need not give you pause if you are planning to do over your kitchen this fall. As my grandmother always said, "There is more than one way to skin a cat." If you'll put your wits to work, you may be able to find a way to refinish your floor that as interesting and as artistic as these I'm going to tell you about.

Mrs. Young—Mrs. Raymond Young of Aurora,

New York—rebuilt her kitchen four years ago. She planned it all out on paper first, then tore down partitions and put up cupboards to fit her plan.

"At last," she writes, "we came to the floor. Part of it was covered with linoleum and the part that had been pantry had a good wood floor. We felt that with all our other expense we couldn't throw away the linoleum nor buy new for the uncovered surface. To solve the problem, I suggested painting and stippling it with a contrasting color. That would do, we both agreed.

"I began by cleaning the surface thoroughly, then I applied two coats of black enamel, letting each coat dry twenty-four hours. I then took a sponge, broke off enough to handle easily, dipped it in

MY KITCHEN FLOOR

(Prize Winning Letter for July)

TWENTY-FOUR years ago, when I was a wee girl, a modern home was built on our farm. Now after these years, I am married, living in this home. The kitchen floor is quite outstanding in our minds.

First, the false floor was laid out of hit and miss material; then the flooring was laid by the carpenters who used old flooring from the old house and more hit and miss material. To cover this my folks chose inlaid linoleum of gray, blue and white. This covered the entire floor. The linoleum was varnished for protection and has been revarnished several times since. It is cleaned with soap and water twice a week and sometimes oftener. I also wax it for preservation and ease in cleaning.

During these twenty-four years four children, two boys and two girls, have done everything from ride kiddy-cars to roller skate in the kitchen. We have all eaten, worked, and sat in the kitchen during all these years.

The linoleum is beginning to wear thin in places, but the design and color are still there the same as they were twenty-four years ago. Everyone who comes mentions how well it has worn and how well it still looks.

We are all convinced that we have a cheap, practical, and durable kitchen floor.

MRS. DELBERT FELDER,
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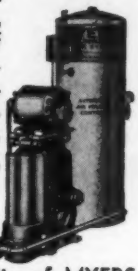

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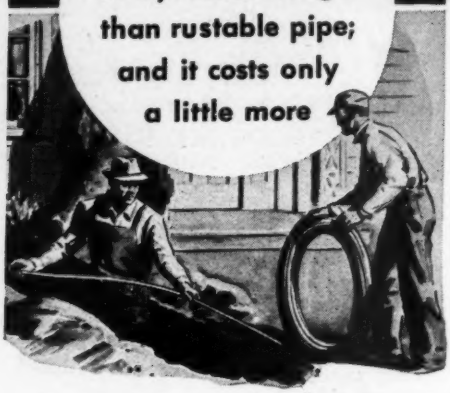

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green paint, and went all over the black with it. It made a very effective design. I just dobbed it on, not geometrically, but very carelessly. When it was dry, I went over it with two coats of very good floor varnish, letting the first coat dry thoroughly before applying the second. Yes, it was hard work, but to my own surprise, it was beautiful and artistic."

Maxine Wilson, of Dennis, Kansas, had the same idea, but she went at it a little differently.

"My kitchen is one of the most pleasant rooms in my home," she writes. "Perhaps I think so because I spend so much time there and because it is comfortable to work in. I credit much of my kitchen cheerfulness to my floor.

"I had covered it with linoleum over six years ago. Both the color and the pattern had faded and were no longer to be seen. What was I to do? I was too poor to buy a new floor covering and to think of the old one detracting from the beauty of my kitchen was too much.

"So I set to work with my pencil and ruler to draw a simple design on paper. It was about six inches square and conventional in pattern. With carbon paper, I traced it on the linoleum, placing the blocks about three inches apart. After having covered the linoleum with that one simple pattern, I moved it to an old store room so I could work undisturbed. I painted it cream and green to match the rest of my kitchen. This paint I had on hand. It was very hard work, but it proved successful and my kitchen is the envy of my friends. It cost me nothing but my time."

And here is another floor, unusual and exciting and new with paint. It is in an old colonial house in Vineland, New Jersey. Mrs. Corsiglia made it over herself, too.

"When we were married," she wrote, "we bought this old house intending to renovate it and install modern equipment without spoiling its original atmosphere.

"A brick floor in the large kitchen caused us no end of concern. The bricks were very cleverly arranged to form an attractive pattern, and being

A plain linoleum with a dark border that turns up to make a cove base board under the edge of the cabinet.

old, were smooth and polished, but the cheerfulness so essential to modern day living was lacking. We were undecided as to whether we should put in a new floor or cover the brick floor with a linoleum of colonial design. But with the cost

of other improvements so high, we concluded that we would leave it as it was for the time being.

"One day the idea came to me that the floor might look nice painted. I decided to experiment, so following the design of the bricks and carrying out the color scheme of my kitchen, Chinese red, black and ivory, I did so. The result was amazing. Here brought out by a coat of paint was an antique floor that could rival any modern linoleum in color and design.

"At regular intervals I apply linoleum varnish and waxing and polishing it keeps it looking beautiful.

"My husband and I are both pleased with the results of my experiment and I can proudly repeat what numberless friends have told me, 'It's labor-saving! It's unique! It's beautiful! It's economical!'"

• • •

Do They Ask for A SECOND CUP at Your House?

IF you had your radio turned on at around six-thirty one Tuesday evening last May, you probably heard Alexander Woollcott tell the familiar story of the farmer who swigged down—the words are Mr. Wollcott's—nineteen cups of coffee a day.

"Somebody asked him," said Mr. Woollcott, "if he didn't think it kept him awake."

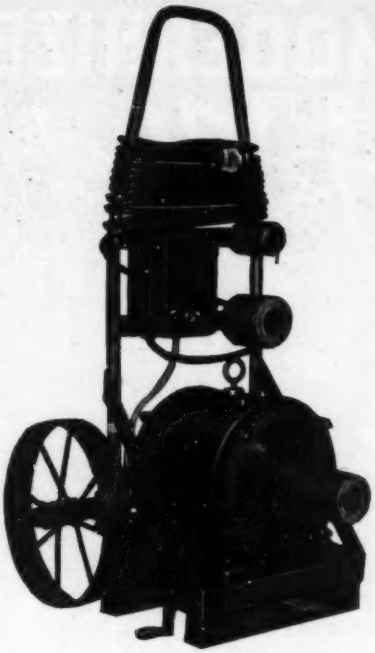
"'Well,' he replied in some surprise, 'it helps'."

That man's wife had a job of coffee making on her hands, more than most folks, I should say. Either the coffee was so good her husband couldn't let it alone, or so weak he had to fairly drown in it to get a taste. I suppose we'll never know which, for such stories never rightly end with all the explanations made and the loose ends tucked in. They just stop—on the laugh.

We will hope it was good. At any rate, making coffee is no longer a matter of individual skill. Anyone can make a good cup of coffee if she will just follow the rules.

To be sure you must begin by buying good coffee, but since the blend is a matter of taste, we'll skip that part. We can't neglect the next step though. You must have your coffee fresh. Coffee experts tell us not to buy more than we need for eight or nine days, because even in a tight container, the air does get in, and the oils that give the coffee flavor evaporate quickly.

Sometimes I wonder which folks enjoy more,



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MAKERS OF THE STAR *ZEPHYR* WINDMILL

drinking coffee, or smelling coffee. To give the cup of coffee you set before your husband just the right delicate, tempting aroma, and flavor, you have to keep the coffee pot scrupulously clean. It must be free from any hint of yesterday's brew.

If today's coffee burbles up over the brown stains of yesterday's, it will lose its finest, freshest

Measuring the coffee automatically.

flavor. There was a time when those on whom we leaned for information frowned on washing the coffee pot with soap. To our great relief, that idea has been given up. Now they say to wash the pot in hot soap suds every time you use it. Rinse it in boiling water, or clean hot water, at least. Then dry it carefully and leave it open to air.

When they say it should smell clean, they mean, I understand, that it should have no odor at all.

Scour the pot every day, too, if that is necessary. Use steel wool on it; use scouring powder; use whatever you need to get those brown stains off the inside of the pot.

That takes you a long way toward a good cup of coffee.

The next step is measuring accurately. Measuring the coffee and measuring the water. With some pots it is measuring the time, too, and the heat. Though many modern coffee makers take care of both of those things for you.

No matter what method you use, you will find this recipe makes a cup of coffee that pleases a majority of coffee drinkers. 2 level tablespoons of coffee to 1 standard measuring cup—one-half pint—of water.

If you have a vacuum coffee maker, you can make good coffee with either pulverized coffee or a fine drip grind. The glass coffee makers have a filter in the upper bowl. You measure the coffee onto this. In the lower bowl goes the water measured cup by cup, and hot or cold, as you like. Hot, if you are in a hurry, I may say. Set the coffee maker on its little electric plate, or on the small unit of your electric range.

As the water heats it rises from the lower bowl to the upper. Take the coffee maker off when the lower bowl is empty and give the liquid a vigorous stir. As soon as it begins to cool, the

water is drawn down through the coffee and the strainer, back into the lower bowl.

When that is done, you have only to whisk off the upper bowl and pour the coffee from the lower.

By the way, if you do have one of these new coffee makers, have you ever realized that you can make tea in the lower part too? That you can heat soup, make chocolate, warm milk, or boil eggs?

You can.

One recent model has a wide neck for both top and bottom bowls so they are easy to clean.

There is a metal pot that makes coffee in this same way, only instead of strainer cloths, to hold back the coffee grounds when the hot water filters through, there is a metal filter rod. This coffee maker has a table stove with a thermostat you can set to heat the water to just 200 degrees for making the coffee. Then after you have taken the top part off and the lower part has become the coffee pot, you can reset the thermostat for any temperature you like and keep the coffee hot to the last drop.

For drip coffee, you heat the pot first with hot water, leave it in, perhaps, while you bring the water for coffee to what jelly makers call a good galloping boil. If you heat it in your electric tea kettle, you can tell of the boil by the vigor of the whistle. Pour this water over the coffee.

To keep the coffee hot while it is dripping through, you can set it on an asbestos mat over low heat, or on a small electric plate designed to

October Contest

Whether you've ever set hammer to nail to rebuild a kitchen of your own or not, you'll probably be interested in knowing about these women who have battled the budget with pencil and paint brush to finish off their kitchens in grand style. You can read about them in our story on floors this month. Mrs. Felder has an interesting tale to tell about a kitchen that is about to celebrate its silver anniversary.

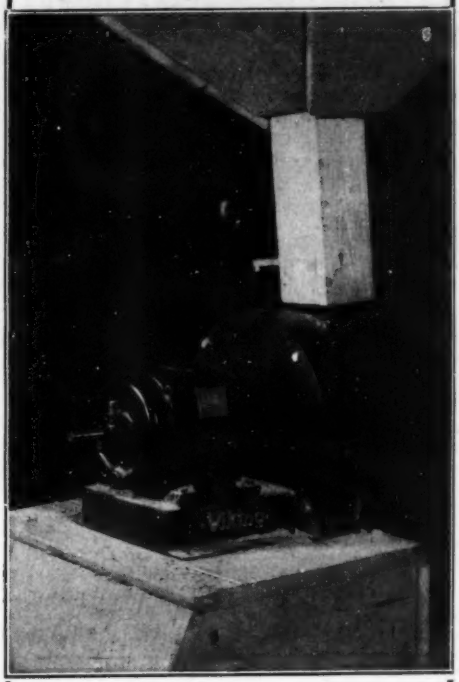
This month let's think about food. How about telling us of the one dish meals and the casserole favorites your family teases for?

OUR FAVORITE DISH

If your letter is the one we print, you'll get a check for five dollars. Send it to Gail Meredith, 1026 Seminole Highway, Madison, Wisconsin, by October 20.

All the letters become the property of the magazine, and the writers agree to their use, or to the use of quotations from them. Payment for such use will be made at regular space rates.

SAVE MONEY WITH
VIKING



TYPICAL FARM INSTALLATION

GRINDING up to 700 pounds of feed per hour, with less than one kilowatt hour per hour, the revolutionary Viking Hammer Mill, because of its automatic, non-fouling feed keeps right on grinding while you go on about other work. Far sighted farmers are grinding their own feed, at low cost, as they want it, when they want it. Operating from one-half horse power motor, this sensational mill, that is setting new economy grinding records, plugs into any convenient 100 volt outlet.

What others say:

STATE COLLEGE EXPERT—"We find that this mill is very efficient, has ample capacity for the average dairy or poultry farmer, and I believe is an answer to the farmers grain grinding requirements. It has several automatic fixtures which are noteworthy and which enable it to run without attention."

MISSOURI FARMER—"In regard to the Viking Hammer Mill we purchased recently, I should like to say that it has greatly exceeded our expectations. It does the job of grinding feed perfectly and I am delighted with it. You will be interested to know that the mills now in operation in this locality are doing splendidly."

OHIO FARMER—"I bought a grinder of you and am much pleased. Before I had to sack my grain, load it in a car, drive to the mill, unload there, load up again, drive home and unload at my farm. Now I grind at home as I want it without the inconvenience or cost of going to mill."

VIRGINIA FARMER—"Since last writing you I have gotten the mill installed and tried it out several times to my own satisfaction. I would like to say that I would not be without it at twice the price paid."

Write for complete information, literature and address of nearest dealer.

VIKING MFG. CO.
JACKSON, MICHIGAN, U. S. A.

Free Information About Equipment

Readers — we are glad to help you secure catalogs and descriptive literature on electrical appliances and equipment. It is a FREE service and NO OBLIGATION is involved.

When seeking information about any piece of equipment or material you are planning to buy, first look through the advertisements in this issue. They are your best guide.

Then, if you do not find what you want— use the handy coupon below, listing clearly and exactly the items on which you want further information.

___Animal Clippers
___Bench Saws
___Better Sight Lamps
___Bottle Washers
___Brooders
___Burglar Alarms
___Churns
___Clocks
___Clothes Washers
___Coffee Makers
___Corn Shellers
___Cream Separators
___Dairy Sterilizers
___Dishwashers
___Drills
___Drink, Fount, Warmers
___Egg Graders
___Ensilage Cutters
___Feed Grinders
___Feed Mixers
___Flat Irons
___Floodlights
___Food Mixers
___Hay Choppers
___Hay Hoists
___Ice Cream Freezers
___Incubators
___Insect Killers
___Ironing Machines
___Irrigation Equipment
___Light for Plant Growth
___Milk Coolers
___Milking Machines
___Motors
___Paint Sprayers
___Pasteurizers
___Radios
___Ranges
___Range Heating Units
___Refrigerators
___Roasters
___Septic Tanks
___Sewing Machines
___Soil Heating
___Soldering Irons
___Spray Plants
___Tea Kettles
___Toasters
___Threshing Machines
___Time Switches
___Tool Grinders
___Ultraviolet Light
___Vacuum Cleaners
___Vegetable Washers
___Ventilators
___Waffle Irons
___Water Heaters
___Water Softeners
___Water Supply
___Welders
___Woodworkers

FREE INFORMATION COUPON

ELECTRICITY ON THE FARM

Readers' Service Dept., 24 W. 40th St., New York

Without cost to me, please have manufacturers send complete information on the following Electrically Operated Equipment which I am thinking of buying:

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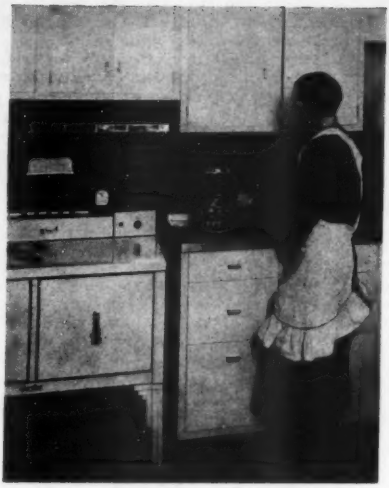
My name is.....
Address .....
I get electricity from.....
..... 10-37



Above: Taking the coffee maker off the electric plate when the water has risen to the upper bowl.
Below: Coffee for breakfast.

give just enough heat to keep the coffee warm, but never, never, boiling.

If you have a percolator, use an all purpose grind or the drip grind, and start with either hot or cold water whichever your model demands. When the liquid begins to show a little bit of color, start to time the percolating. Run it seven to ten minutes, to suit your own taste.

For the coffee pot you use on your range, get all purpose grind. Bring the water to a boil first, then stir in the coffee. Let the brew stand on very low heat for ten minutes. Do not let it boil, though, if you value the flavor of your brew.

Strain it off the grounds as soon as the ten minutes are up.

The last line in all directions for making good coffee, whatever the method, is just the same. "Serve at once."

ON THE AIR

Conducted by JEROME J. HENRY

Not a Whisper When He Rehearses

NOT a whisper in the studio is the rule when Werner Janssen rehearses his 38-piece orchestra for the new Fleischmann programs.

So sensitive is Janssen's ear that he can detect a whisper above the music of the largest orchestra. Among musicians he is famous for that ear. If one note from the string or brass section is as much as a half or quarter tone off, Janssen quickly points an accusing baton.

The conductor works as prodigiously behind the scenes as he does in the studios. On just one number—an adaptation of Sibelius' "Finlandia"—which he played in the opening broadcast, Janssen worked from 7:00 a.m. one day until 4 a.m. the next without sleep.

These marathon arranging sessions are only a part of Janssen's "perfectionist" technique. Every detail must be exactly right.

• • •

Has a Home and Career

CHARMING Lois Bennett, who co-stars with Frank Munn on NBC's Sweetest Love Songs Ever Sung program, has found the answer to the marriage and career problem. That answer, she points out, lies in one small word: radio.

Through her work on the air waves she has discovered that it is possible to build a home and a career simultaneously and to build them both well. Although radio demands the best that an artist can give it—"And then," Lois Bennett adds, "a little more!"—it is by its very nature more concentrated than either concert appearances or continued stage engagements, permitting the modern woman to lead a normal life away from the public eye at the same time that she is provided with the opportunity for self-expression.

"While it is true," she adds, "that at one time women had to choose between marriage and a career, radio has now made such a choice unnecessary. Through radio an artist can reach the greatest possible audience intimately and still live a life of her own. "It's the new way to do two things at once," she smiles, "and the best way!"

• • •

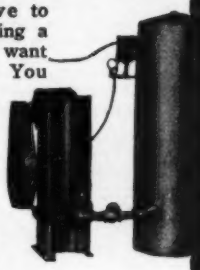
Father Toughest Role to Fill

THE American father, between the ages of 40 and 50, is by far the most difficult role to fill, says M. H. Joachim, author and producer of "Your Unseen Friend," who auditions about 50 people a week for this feature heard over the Columbia network.

"In fact the personality of the American father tops the quartet of casting problems I am faced with each week," the director goes on to say. "Actors essaying such a character either sound like romantic heroes of about 35, sophisticated men about town around 40 or elderly men. Next most exacting in their requirements are the middle aged woman, the romantic juvenile of 21 who sounds 21, and a 'smoothie' who doesn't sound menacing."

On the other hand Joachim has on file dozens of

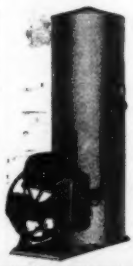
DEPENDABLE Running Water with AERMOTOR WATER SYSTEMS



● It is too expensive to experiment when selecting a water system. You want proved dependability. You can get it with **Aermotor Electric Water Systems** for they have proved themselves for years in homes everywhere.

● Dependable running water, at the turn of a faucet, wherever you need it, saves steps, time and money. It gives your family better and more healthful living. Best of all, with **Aermotor Water Systems** it is both easy to have and very economical.

● **Aermotor's** improved models bring you the latest in modernized design and construction. They are automatically oiled, automatically operated, quiet and dependable. They are available for all shallow and deep well requirements.



● Find out about this efficient equipment and the remarkable convenience of running water in your home.

Send FOR THIS Book

AERMOTOR COMPANY,
2500 Roosevelt Road,
Chicago, Illinois

I am interested in buying an **Aermotor Water System.** Send "Facts" Book.

Name.....

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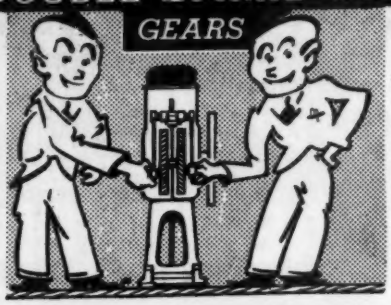
DOUBLE SPIRAL CUT GEARS



Only Uniflow uses the more expensive spiral cut gears . . . straddles them directly over the suction rod to multiply the lifting force. You'll save money by using the simple adjustment that makes pump head parts snug again after years of trouble-free service. You'll buy a Uniflow Deep Well because of its mechanical superiority . . . and be glad to pocket the dollars saved, thanks to Uniflow's low prices.

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FOR FAMILY AND STOCK
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Grind your feed with electricity for as low as ½c per 100 pounds. Write for circular and prices of our Feed Grinders for automatic operation. They elevate grain and feed if desired.

GRIND YOUR OWN FEED

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The New WARNER Premier Electric COLD BROODING System

New! Brood up to 500 chicks, electrically, with medically approved health heating units, at cost low as 6¢ a day. Try cold brooding with the WARNER and raise more chicks. Ideal for broiler plants. Postal brings free folder and name of nearest dealer where you can see demonstration. Write The National Ideal Co., Box F, Toledo, Ohio.

people on whom he can call at a minute's notice when he needs a straight ingenue or leading man, an emotional wife or husband, the male or female villain, French, Jewish, or Irish dialecticians.

No matter whether an actor is a veteran or an amateur, he invariably has the same failings, claims this director. Ninety-nine percent who come to audition announce without batting an eyelash that they can play all characters and most dialects; each one hates to have his lines cut, no matter what the reason; many of them are inclined to carry on sotto voce conversations with each other during rehearsal; and many of them find it almost impossible to fade out gradually on conversation or applause.

• • •

Lillie Comedy Carries On

ABEA LILLIE rehearsal is fun. Watching "The Honest Working Girl" go through her routine as she prepares for a broadcast makes it easy to understand why her show is so popular a feature.

For Miss Lillie's capacity for work and unflagging attention to detail is exceeded only by her capacity for enjoying what she does. And her gaiety and good humor are reflected by everyone else connected with the show, from the control room to the kettle drum. She may be perched comfortably, if informally, on a high stool singing, "Honey, My Love" or some other comic song in the style that made her famous. Or she may simply be sitting unobtrusively in a corner studying her script.

Fibber and Molly McGee can hardly suppress their joy at returning to the radio after making their first movie, "This Way Please," in Hollywood.

But you can't help feeling that she and everyone in the studio is at that particular moment doing the thing that he or she enjoys most. There is an unstudied spirit of lightness and good humor in the air that suggests anything but the grim do-or-die atmosphere that pervades many dress rehearsals.

Questions and Answers

Conducted by R. U. BLASINGAME

Sparrow Traps and Pedometers

Question: *Does anyone make an electric trap to kill sparrows in barns? Also, who sells the Pedometer that was put on the ankle of a Connecticut housewife"*

T. L. W.

Answer: I know of no method which employs electricity to kill barn sparrows. Electric fly screens and traps are made by several manufacturers. Insectocutor Screen Co., Sycamore, Illinois; Lyons Eiectric Co., P. O. Box 1436, San Diego, Cal., and Folmer Electricide Corp., Rochester, N. Y.

I am not able to learn the manufacturer of the pedometer you refer to, but these devices are also manufactured by The New Haven Clock Co., of New Haven, Conn., and Selsi Co., Inc., 43 W. 23rd St., New York City.

Running Motor with Battery Current

Question: *Will you please furnish me with the following information? What voltage and type battery would I need to run a 1 h.p. motor? Also, what kind of a motor would I need? Please furnish the same information for a 5 h.p. motor.*

A. B.

Answer: It would be impractical, very likely, for you to operate a 5 h.p. electric motor from batteries. A one-horsepower motor may be operated by a 32-volt battery light plant, provided the generator charges during the time the motor is in operation. The generator should have a capacity of about 1,000 watts in order to prevent a heavy drain of current from the batteries when the motor is running. I suggest that you obtain specifications from manufacturers of battery light plants for a set to operate this motor.

Combined Switches

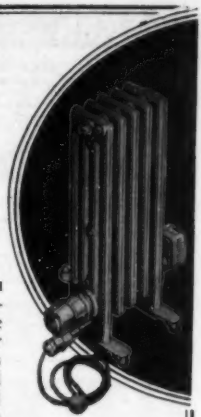
Question: *Would a combination switch, 220 and 110-volt (220 volts for the meter and 100 volts for light) be practical? This would eliminate one switch and make a neater job. There would be less couplings and work.*

B. J.

Answer: I do not believe I understand exactly your question concerning the use of the combination 220 and 110-V. switch to control both motor and lights. If the following does not answer your question, I would appreciate your giving me more details so that I can give you the information you desire.

The use of an ordinary switch to control the motor implies that the motor will be protected only with fuses. The motor in starting requires several times more current than it does after it is running. A fuse of a size large enough to allow a motor to start does not afford ample protection to the motor after it is running. Devices such as thermal cutouts and magnetic relays which will allow the necessary starting current to flow but which will break the circuit if there is an excess flow of current for too long a period of time, should be used in connection with motors. Such devices generally

Handy Heat On Wheels
for the BATH, PORCH, SICK ROOM, CAMPS, GARAGES, OFFICES *or*



any room where you need occasional or extra heat, this portable electric steam radiator is just the thing. It is always ready at the end of an electric cord. Ideal for those cool damp days of late Fall or early Spring. Just plug in your cord and have an hour or so of "jiffy heat."

Comes ready for immediate use. Is thermostatically controlled, insuring economy and safety. Double ball bearing casters make it easy to move. An efficient little steam plant that costs but a few cents a day to run. Send for special folder showing 4 sizes.

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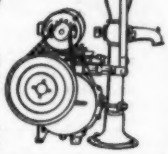
Take the Backache Out of Pumping?

Compact, sturdy and economical, STOVER PUMPING UNITS are made for electric motor or gasoline engine drive. Clamp to pump head, on old platform. Quiet running. Styles and sizes for any pump, deep or shallow wells.



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Send a post card for latest STOVER PUMPING UNIT catalog giving sizes, capacities and suggestions for labor-saving hook-ups.

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New Time Saver for egg producers. Investigate this remarkable machine...Cleans eggs quickly and efficiently...No more wasted time...Operates on any 110 Volt Current...Gives constant dependable service...Price $10.50 prepaid...Write for descriptive circular.

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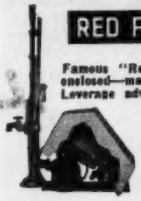
BAKER POWER PUMP WATER SYSTEM

Gives running water under pressure from any depth well. Various size pumps and capacities—superior design—completely automatic—running in oil—quiet and efficient. Warranted by our half century pump manufacturing experience. Attractive low prices.

RED FRED PUMP JACKS



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What of it!

TRUMBULL

Automatic Electric

POULTRY WATER WARMER

Prevents Freezing — Protects Profits

Frozen water, not cold weather, causes egg slumps. Get more eggs when prices are highest by keeping drinking water always at 50° F. A card will bring you valuable information. Address

The Trumbull Electric Mfg. Co., 1012 Woodford Ave. Plainville, Conn.

PARAGON SYSTEM MAKES HENS PAY

Hens pay, only when they produce eggs. To get more eggs in winter, give hens as long a workday as in summer. Light them earlier—keep them lighted longer. But absolute regularity of lighting is needed for best results.

PARAGON SYSTEM OF POULTRY HOUSE LIGHTING

guarantees a perfectly uniform light day by its full automatic control. Instantly set for any desired timing. Installed by anyone. Automatic dimming for roosting period. Dust-proof, damp-proof. Made by the largest exclusive time control factory.

Ask for free Bulletin 41.

Paragon Time Controls are adaptable to any type circuit.

PARAGON ELECTRIC CO.

37 W. Van Buren Street CHICAGO

serve as starting switches for motors. Before you use the combination switch to which you refer, you should check to see whether it will pass the Fire Underwriters inspection and local ordinances or power company rules.

Pump for Milk Cooler

Question: *Can I use a Ford V-8 water pump and a ¼ h.p. electric motor to circulate ice water through a tubular milk cooler? What size pulleys should I use? I only cool about 150 pounds of milk twice a day. Water cools milk down to 57° but I would like to get it 10° or 15° cooler.*

W. R.

Answer: I cannot tell you if it will be practical to use a Ford V-8 water pump and an electric motor to circulate ice water through your tubular milk cooler. However, I do not believe that it will work out satisfactorily. An automobile water pump does not force water against much pressure. You will need a pump which is capable of forcing water against the pressure required to raise the water to the milk cooler and overcome the friction in the pipes and tubes. A small centrifugal or rotary pump designed for such work can be obtained. If you should try the V-8 motor pump, I would suggest that it be driven about twice as fast as the motor. A 2-inch pulley on the pump and a 4-inch pulley on the motor would do this.

Policeman

Two small girls were having a tremendous argument.

"My daddy's a mounted policeman," said Betty. "He rides a horse all day."

"That's no better than being an ordinary policeman like my daddy," said Peggy, proudly.

"Oh, but it is!" said the first child. "If there's any trouble, he can get away quicker."

She (gushingly)—"Will you love me when I am old?"
He—"Love you? I shall idolize you. I shall worship the ground under your precious little feet. I shall—er-er—you aren't going to look like your mother, are you?"

"Why do you wear rubber gloves when cutting hair?" asked the customer.

"For the purpose," replied the barber, "of keeping our celebrated hair restorer from causing hair to grow on my hands."

He sold a bottle.

Might Have Been an Arrow

I sneezed a sneeze into the air;
It fell to ground I knew not where;
But hard and cold were the looks of those
In whose vicinity I snore.

—Epitome.

Starting Trouble

Two lady schoolteachers from Brooklyn, spending their sabbatical year exploring western Canada, stopped at a small and old-fashioned hotel in Alberta recently.

One of the pair was inclined to be worrisome when traveling, and she couldn't rest until she had made a tour of the corridors to hunt out exits in case of fire. The first door she opened, unforunately, turned out to be that of the public bath, occupied by an elderly gentleman taking a shower.

"Oh, excuse me!" the lady stammered, flustered. "I'm looking for the fire escape." Then she ran for it.

To her dismay, she hadn't got far along the corridor when she heard a shout behind her and, looking around, saw the gentleman, wearing only a towel, running after her. "Where's the fire?" he hollered.

Put a Motor on That Corn Sheller

(*Continued from page* 14)

the speed of the motor; then divide this result by the desired flywheel speed, and the answer is the proper diameter in inches for the flywheel pulley.

Charles V. Thayer of Hickory Farm, Amherst, Mass., and his motorized corn sheller.

For example: with a motor speed of 1,725 r.p.m.; a motor pulley diameter of 1½ inches, and a desired flywheel speed of 180 r.p.m.; we have $1½ \times 1{,}725 = 2{,}587½$. This divided by 180 equals 144/10 inches, or practically a diameter of 14½ inches.

When you have determined the diameter of pulley you need, try to find a metal one near that size at a blacksmith or machine shop. If you find one, have a hole drilled in each of two opposite spokes, then have corresponding ones drilled in the spokes of the sheller flywheel, and bolt the pulley to the flywheel as shown in the illustration. If you do not find a metal one, make one out of a solid block of wood if you have a piece big enough, or build one up of several pieces and thicknesses of board, each layer being at right angles to the next, making it at least two inches thick. If you use nails, make sure there are none where the saw will hit them. Mark out a circle of the right size, and then the easiest thing is to take it to a wood working shop and have it sawed out on a bandsaw for a few cents. Have the flywheel drilled as for the metal pulley, and bolt the wooden pulley on. Be sure to take the crank off the sheller.

The motor is mounted out of the way on the top of the sheller, on a solid, flat platform, well braced to the corner posts. On to this platform screw a pair of adjustable motor mounting rails so the motor pulley will line up with the flywheel pulley. These rails are inexpensive but very useful. They allow quick adjustment of the belt tension, and if you use the motor for other work, the rails also allow quick and easy changing of the motor.

To determine the belt length, put the motor at the end of the rails nearest to the flywheel pulley, so that if the belt stretches, there will be the full length of the rails to take it up. Run a string around the two pulleys to determine the length of belt to order. By knowing the length so accurately you can usually get the belt "clipper" spliced free of charge when you buy it, and so save yourself much trouble. The belt should be a high speed one, of flexible leather, about one and one half inches wide. If it is a thick, stiff one, the motor will waste most of its power bending the belt around the small motor pulley, which is used to avoid making an even bigger flywheel pulley. The use of belt dressing is advised to prevent slippage. Take the belt off when the machine is not in use, for if left in place, under tension, it will stretch unnecessarily.

Unless your motor cost around $16.00 or more, it is probably a "split-phase" motor. This means it is of an excellent type of construction, but is unable to start heavy loads, even though it may carry them easily once they are turning. So, when you turn the motor on, give the heavy flywheel a spin with your hand to help the motor.

Last but not least, give your sheller plenty of oil. Even discarded crankcase oil will do, but put it on every fifteen minutes of operation. You will avoid a lot of wear and get far more power where you want it—which is against the ear of corn.

The man at the theater was annoyed by the conversation in the row behind.

"Excuse me," he said, "but we can't hear a word."

"Oh," replied the talkative one; "and is it any business of yours what I'm telling my wife?"

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What's New

Reviewed by T. E. HIENTON

Names and addresses of manufacturers of the articles described in this column will gladly be furnished upon request. Address your requests to What's New Department, ELECTRICITY ON THE FARM, *24 West 40th Street, New York, N. Y.*

Manual of Lathe Operation

Mechanization of farms by addition of the automobile, truck, tractor, and larger farm machines has intensified the amount of repair and service work which must be done to insure their availability for use. One of the tools commonly employed in caring for this additional repair and service work is the lathe. It has become a necessary item in the farm workshop where any extensive work is done.

The operation of the lathe like that of the operation of the new machinery is a problem which involves a knowledge of handling as well as skill in manipulation. A new manual which describes the construction of the lathe, its use, and care has been issued by a lathe manufacturer. It is available at small cost and will prove invaluable to the farmer who operates a lathe in his workshop.

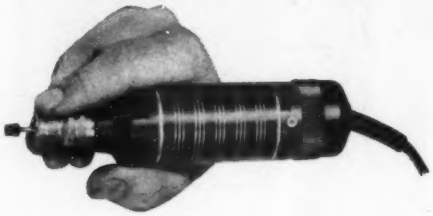
Milk-Cooling Tank

Public acceptance of milk of high quality has been a primary inducement to dairymen to produce that kind of milk. Adequate refrigeration is recognized and used by them as an aid in its production. An electric refrigerator with insulated milk-cooling tank has proven to be a most satisfactory source of refrigeration on dairy farms producing milk of high quality.

A new milk-cooling tank, the product of an eastern manufacturer, is insulated with 4 inches of cork in sides and bottom and 3 inches in the cover. This tank is made in sizes rated at 2, 3, 4, 6, 8, 10, 12, 14, and 16 cans of 10-gallon capacity. Each unit is equipped with an outside and inside tank of copper-bearing steel and is finished on the outside with aluminum paint.

Electric Service Tool

Many small repairs, such as mending holes in fuel tanks, watering tanks, or water buckets, can be done more easily on the farm when electrically operated tools are available. An electric tool which will operate a drill, grinder, polisher, cutting tool, sanding device or saw soon becomes indispensable for such minor repair work.



An electric service tool of recent origin, which can be held in the hand, was recently announced by a Middle Western firm. This tool, which is 6 inches long including the chuck weighs only 12 ounces. It is equipped with a universal motor for 110-volt a.c. or d.c. operation, which is controlled by a rotary type switch.

CLASSIFIED ADVERTISING

ELECTRIC SUPPLIES FOR POULTRYMEN. Manufactured by the oldest electrical manufacturer of electrical poultry equipment. Modern fan brooders, fly electrocutors, incubators, burglar and fire alarms, water heaters, time switches, thermostats, etc. The Lyon Line gives reliable performance at low cost. Write for FREE catalog. LYON ELECTRIC CO., Dept. EF, San Diego, Cal.

THE NEVER-FAIL TIME SWITCH provides longer working hours for your flock during short days of fall and winter. Scientifically designed and sold on money-back guarantee. Write for full information today. Oscar Schwengel Co., 713 Oakland Ave., Port Washington, Wisconsin.

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HAVE YOU A SOUND, PRACTICAL INVENTION for sale, either patented or unpatented? New ideas can now be safely sold without patenting expense. We have been successfully helping others since 1924. Write for proof and tell us what you have for sale. CHARTERED INSTITUTE OF AMERICAN INVENTORS, Dept. 108, Washington, D.C.

SALESMEN WANTED—NEW 6 VOLT ELECTRIC ARC WELDER. Sells on 5 minute demonstration to mechanics, repairmen, farmers, shops, factories. Wholesales $2.50. Up to 150% profit. Works off storage battery, high line, or 32 volt plant. TRINDL PRODUCTS, 2225-CN, Calumet, Chicago.

COVER TITLE CONTEST

AUGUST COVER

OCTOBER RULES

Seven cash prizes will be awarded for the best titles to the picture on the front cover of this magazine.

The first prize will be $20 cash; the second prize $5.

In addition, five consolation prizes of $3 each will be awarded for the best title from each of these five geographic sections of the country: 1—New England, 2—Middle and South Atlantic States, 3—East Central (Ohio, Ind., Ill., Mich., Wis., Ky., Ala., Tenn., Miss.), 4—West Central (Minn., Ia., Mo., N. D., S. D., Neb., Kans., Ark., La., Okla., Tex.), 5—Mountain and Pacific (other far western states).

In case of a tie, each winning contestant will receive the full cash prize to which he or she is entitled.

Titles should be brief—the shorter the better.

All members of the farm family to whom this magazine was sent may submit titles, but each contestant may submit only one title.

Question "A" must be answered.

Entries must be sent to the Title Editor, ELECTRICITY ON THE FARM, 6 North Michigan Avenue, Chicago, Illinois, before November 1st.

Winning names and titles will be announced in the December issue.

Send your title on the coupon or make out a similar form on a plain sheet of paper or government postcard.

Awards for August Contest

FIRST PRIZE — $20

"A hired hand that likes to be pushed."

BONITA GRIMES,
R. F. D. 3, DELAWARE, OHIO

SECOND PRIZE — $5

"If it's power you're needing anywhere on the lot,
A portable motor is 'Johnny-on-the-spot'."

MRS. W. B. CARNAHAN,
R. F. D. 3, MURFREESBORO, TENN.

Five Sectional Prizes — $3 Each

"Power on wheels is always at work's heels."
HENRY J. FINCK, Colrain Road, Shelburne Falls, Mass.

"Wheel the motor into line—turn the switch and all is fine."
ROLAND H. CLARK, R. F. D. 1, Box 26-A, Salem, Va.

"Really the electric motor is the farmer's finest friend,
Saves him cash and patience that on extra help he'd spend."
HOWARD J. ANNIS, R. F. D. 5, Bremen, Ind.

"A chore boy on wheels, more dependable than one on heels."
MRS. J. H. JONES, R. F. D. 2, Victoria, Texas

"Job to job electric power, toiling for man hour after hour."
EVELYN TATE, Grantsville, Utah

My title for the October Front Cover picture of ELECTRICITY ON THE FARM is.....

.....

(a) Please list the electrical appliances you do not own in the order you plan to purchase them.

1. ..... 3. ..... 5. .....

2. ..... 4. ..... 6. .....

My Name is..... R. F. D.....

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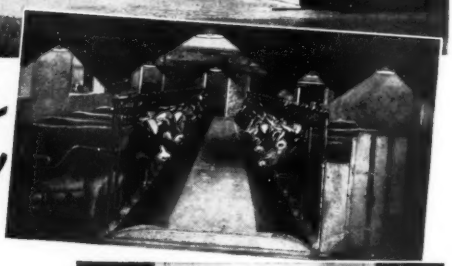

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v